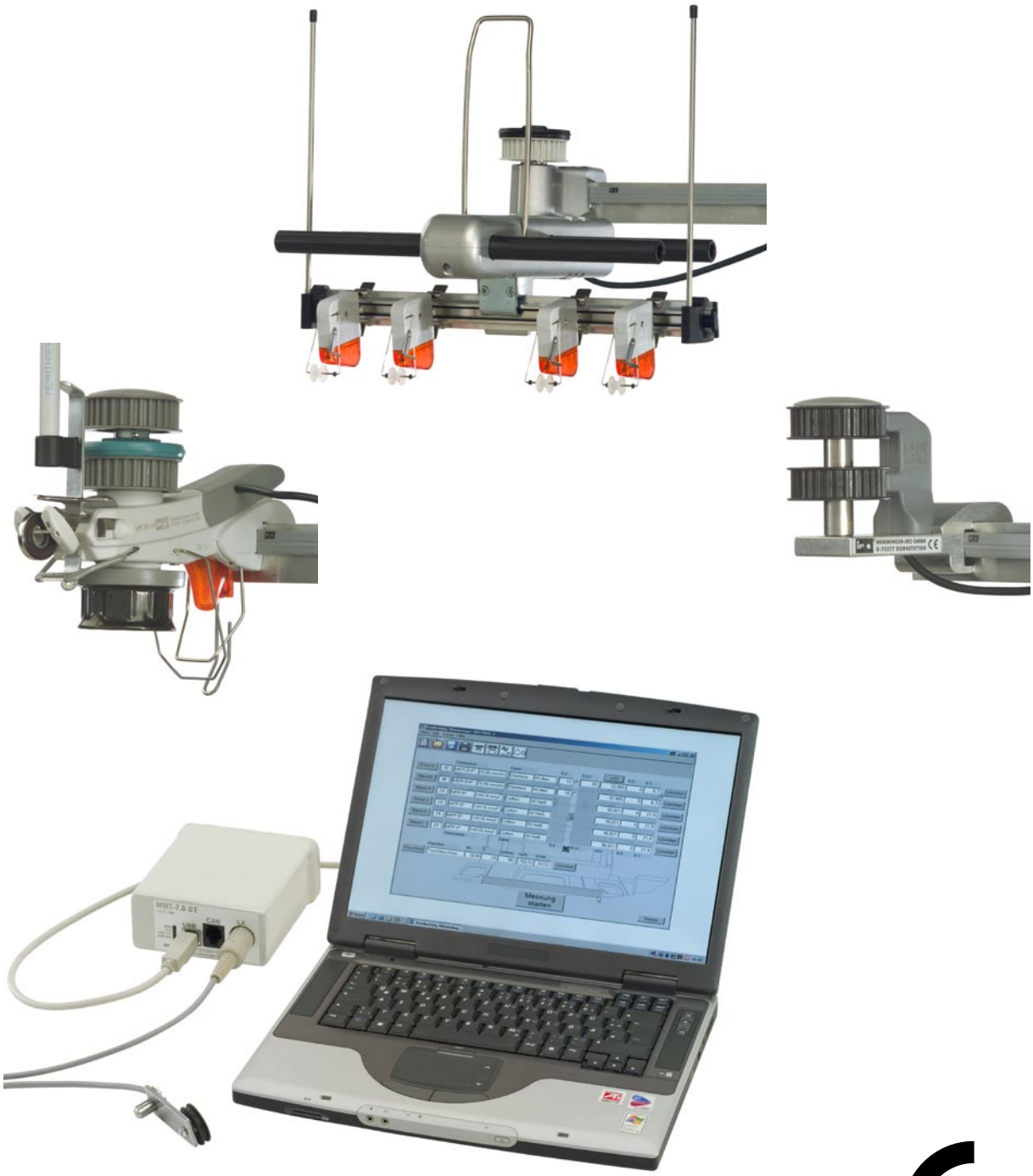
Operating Instructions

LMT 7



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MEMMINGER-IRO GMBH
D-72277 DORNSTETTEN

english
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17.10.06

Introduction

Congratulations and thank you for choosing a quality product from MEMMINGER IRO. To ensure that you get top performance from this product you should be fully familiar with all its features and functions.

This is why we ask you to read this instruction manual carefully before starting to use the product. This manual contains important information and instructions, which must be observed when using this equipment. Keep this manual for future reference.

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Permitted Uses

The LMT 7 Multifunction Tester is exclusively used for detecting and checking the production data for circular knitting machines with continuous yarn use. Any other uses are not permitted. The manufacturer will not accepted any liability for damages resulting from non-permitted uses. The user is liable for damages resulting from non-permitted uses.

Safety Precautions

No special training is necessary to use the LMT 7 system.

The operator is responsible for ensuring that all instructions regarding the electrical installation, fitting, operation and maintenance are implemented.

The electrical installation of the LMT 7 system, as well as servicing of the electrical installation, should only be carried out by qualified electricians, in accordance with electrical regulations.

The LMT 7 system contains electronic components, which can be damaged by exposure to electrostatic charge. Before you open the equipment housing, you should take precautions to prevent electrostatic charges. You can discharge any electrostatic charges beforehand by touching an earthed object such as the machine or the earth contact of a socket.

The power supply for the LMT 7 system is taken from the circular knitting machine and it must be possible to turn the machine on and off using the main switch of the circular knittingmachine. This means that it can only receive power when the machine is switched on.

Only use original spare parts and accessories.

Warranty

We advise you that we accept no liabibility for damage and malfunctions, which are a result of incorrect or improper use of the equipment and the Software.

As the LMT 7 system is a measuring device, which works on the basis of entered and observed data, using a different quantity of yarn to that entered will necessarily lead to incorrect results. For precise measurements, laboratory analysis is always advised. For this reason we do not accept any liability for damages of any kind, particularly for financial losses, caused by inaccurate measurements.

Disposal

When you need to dispose of the LMT 7 system after use, do so in accordance with the regulations for disposal of electrical equipment with electronic parts, which you usually follow.

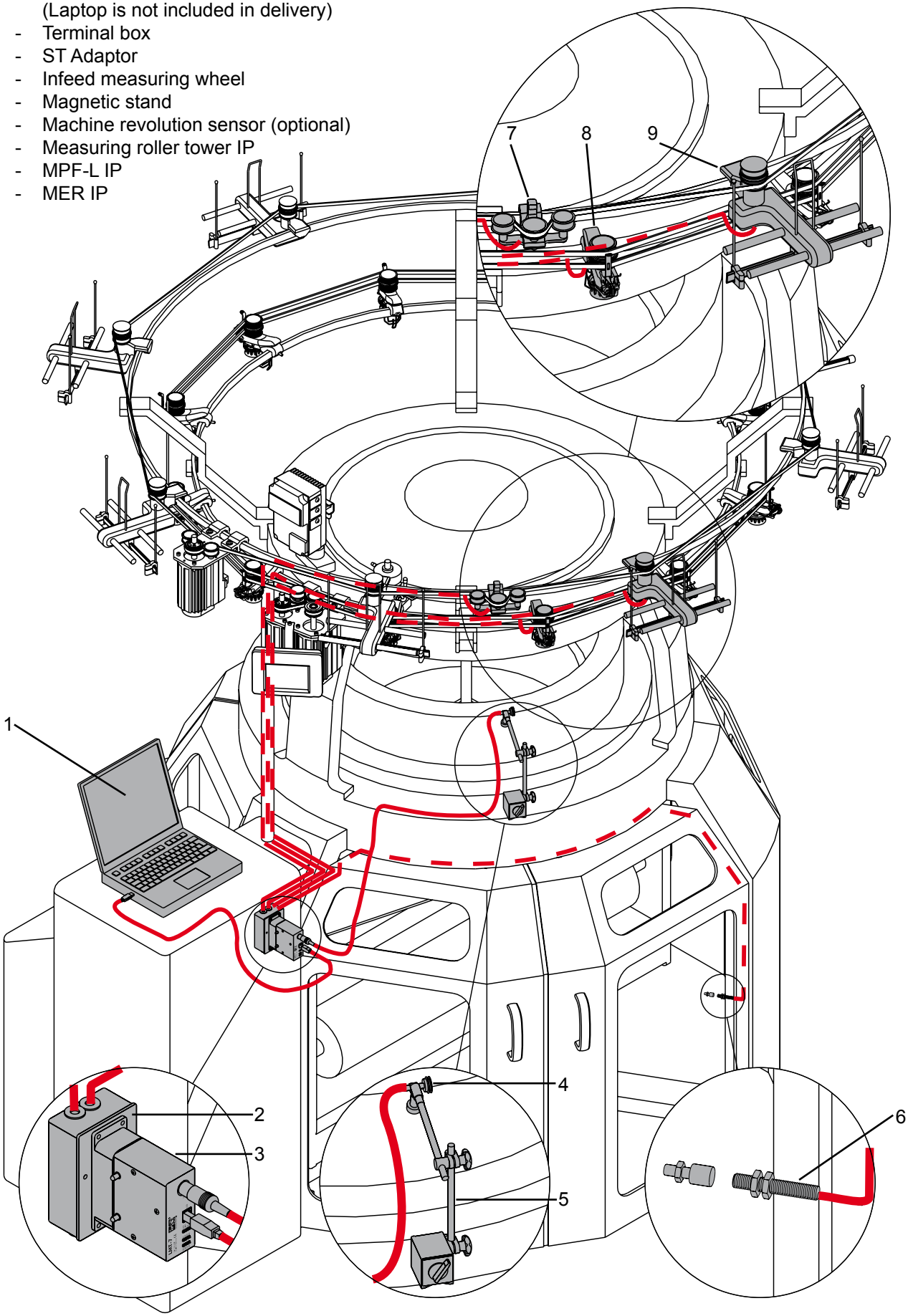
Symbols used in this manual

CAUTION!
This symbol marks important instructions where failure to follow the instructions can cause personal injury or damage to the equipment.

NOTE!
This symbol marks useful information which will help you to get the best from the equipment.

Unit components

1 - LMT 7 software
(Laptop is not included in delivery)
2 - Terminal box
3 - ST Adaptor
4 - Infeed measuring wheel
5 - Magnetic stand
6 - Machine revolution sensor (optional)
7 - Measuring roller tower IP
8 - MPF-L IP
9 - MER IP



Function

The LMT 7 system consists of a software package, to be installed on a laptop running Microsoft Windows XP, pulse generators, a machine revolution sensor, a terminal box, an ST adaptor as well as an infeed measuring wheel mounted on a magnetic stand. The LMT 7 software, the ST adaptor and the infeed measuring wheel with magnetic stand are only required to be used once per knitting machine. For the measuring process, the laptop is connected by a USB cable and the ST adaptor to the terminal box, which is permanently installed on the knitting machine.

In addition to the terminal box, a machine revolution sensor, up to 6 MPF IP or MER IP units or three measuring roller towers are permanently installed on the knitting machine as pulse generators. The machine revolution sensor and MPF IP or MER IP units or the measuring roller towers are linked to the terminal box. The machine revolution sensor registers the revolutions of the machine.

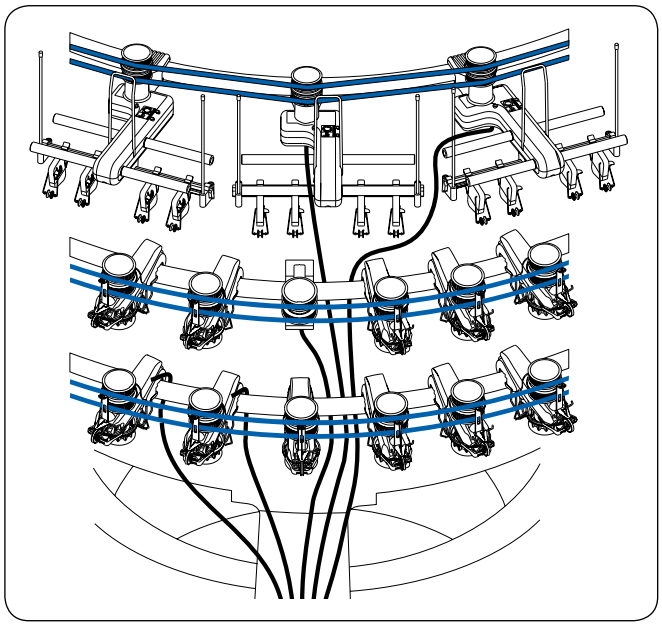
The pulse generators measure the movement of the toothed drive belt and registers this in the form of impulses to the laptop. The laptop converts the impulses into yarn length per revolution. Either the old type measuring rollers or the new measuring roller towers IP can be used for this process.

However it is more advantageous to use the MPF IP or MER IP units, as no other devices need to be mounted on the feeder ring in addition to the actual feeders. The infeed measuring wheel is installed on the knitting machine table using a magnetic stand as close as possible to the infeed point of the elastane yarn at the yarn guide. The stretch of the elastane yarn between the feeder and the yarn guide is measured.

Features

- Yarn infeed length per machine revolution for max 6 drive belts,
- Yarn infeed length per needle,
- Weight percentages of basic and elastane yarns used in the fabric production; blended yarn percentages can also be evaluated,
- Provides a machine setting deviation from the fabric specification to be achieved, as a percentage difference.
- Fabric production per hour,
- Knitting machine revolutions per minute,
- All stored data about the machines, yarn, feeder and production can be printed if necessary,
- All values are simultaneously displayed in full.
- Standard PC-style search and sorting.
- When editing or deleting data, the system automatically checks whether these files are used in other combinations.

This makes it quick and inexpensive to check knitted fabric quality and calculation data regularly. Yarn count fluctuations of the elastane yarn are not taken into account by the LMT 7.

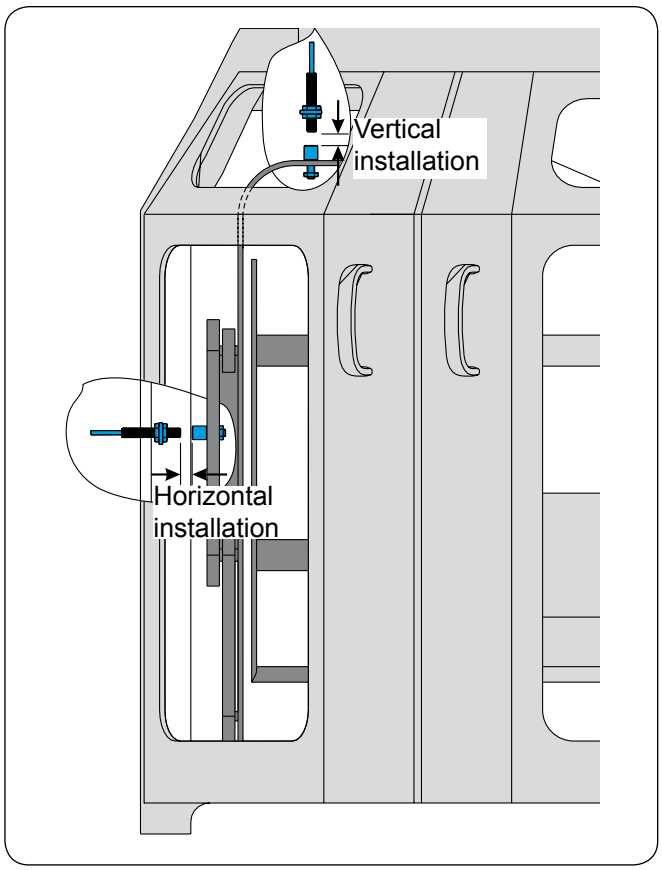


Installing MPF-L IP, MER IP and Measuring Roller Towers IP

- Lay the cable for the IP devices, and fix with cable ties.
- Position the cable so that it will not be damaged and it will not be disturbed when changing the drive belts.

CAUTION!
An MPF-L IP or MER IP must be installed for each drive belt.

NOTE!
When installing several IP devices, mark the ends of the cables.



Machine Revolution

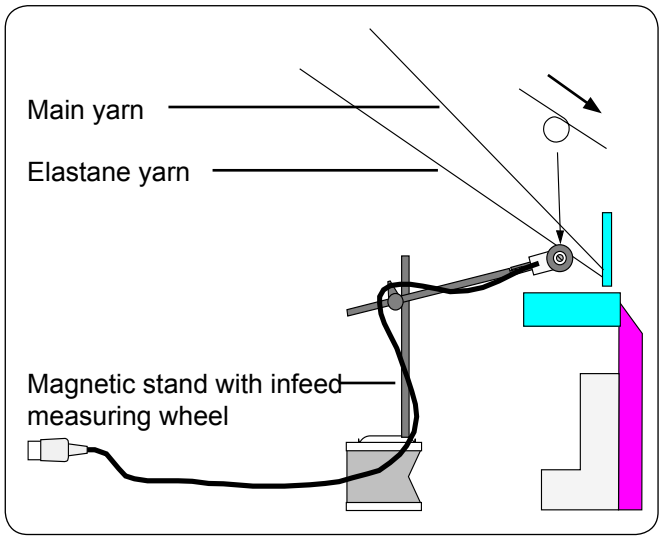
The machine: the cycle signal from the machine can be connected directly to the LMT 7 terminal box.

PULSONIC 5.2: the machine revolution signal from PULSONIC 5.2 can be connected directly to the LMT 7 terminal box.

External machine revolution sensors (optional): If neither of these machine revolution signals is available, an external cycle machine sensor must be connected.

NOTE!
Check that the machine revolution sensor is not in a position where it can be damaged by turning machine parts. The machine revolution sensor should not touch any machine parts when the machine is running.

- The machine revolution sensor should preferably be installed vertically.

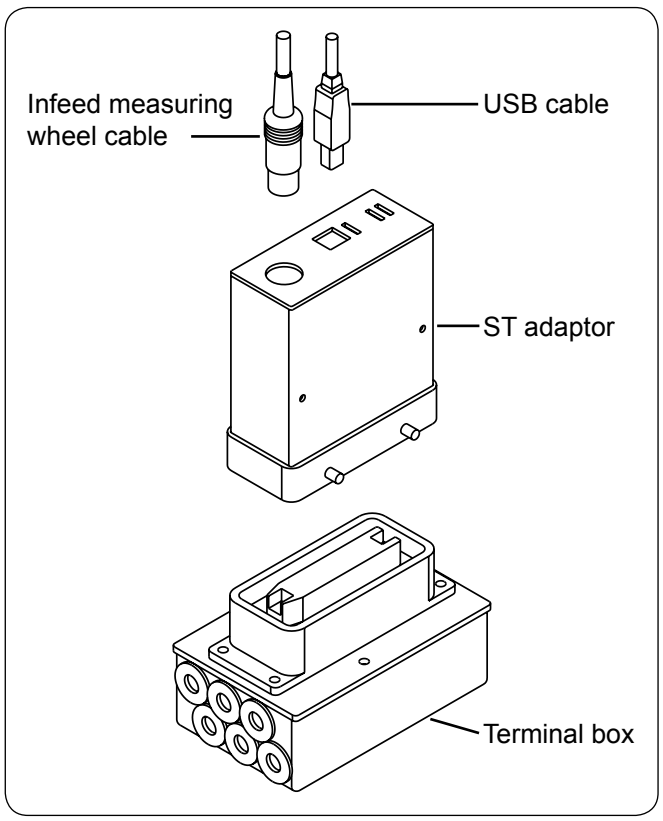


Mounting and Connecting the Infeed Measuring Wheel

The elastane yarn is stretched between the feeder and the yarn guide. This stretching, “LX”, can be measured using an infeed measuring wheel.

The infeed measuring wheel is mounted on a magnetic stand. The magnetism can be turned off using a switch at the base of the stand. The infeed measuring wheel must be placed precisely in the line of flow of the yarn, as close as possible to the yarn guide. The yarn must go around the infeed measuring wheel for one full turn (360°).

After the end of every measurement, the infeed measuring wheel can be removed from the knitting machine.

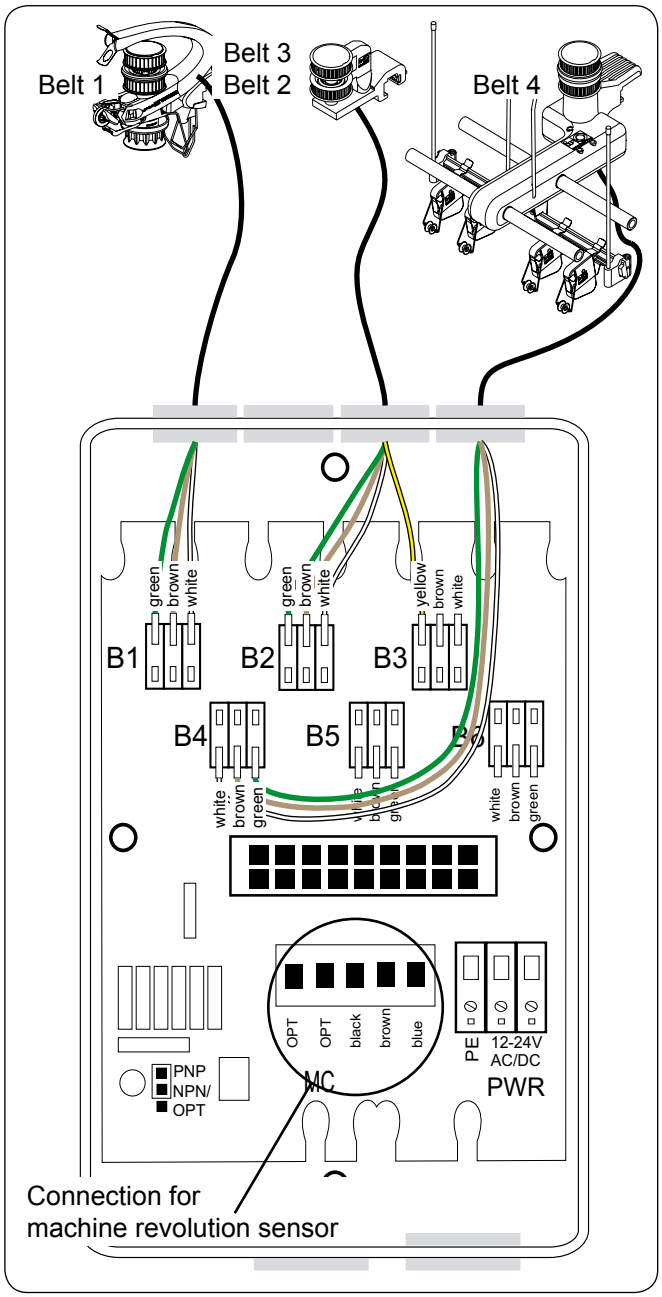


Setting up and Connecting the Laptop with the LMT 7 Software

The laptop with the LMT 7 software is connected to the terminal box by a USB cable with an ST adaptor. To ensure a secure connection, the ST adaptor is held to the terminal box with two clamps.

CAUTION!
Make sure that the laptop is in a safe and stable position.

NOTE!
We recommend that you use a table trolley to move the laptop from machine to machine. The connecting cable is long enough to use the laptop without removing it from the table trolley.



Mounting the Terminal Box and Electrical Connection

The terminal box is fixed to the leg of the machine in an accessible position with two M4x12 cylinder head screws. Fix the LMT 7 ST adaptor for USB to the terminal box using the two clamps.

NOTE!
Moving machine parts should not touch the cable connecting the infeed measuring wheel and the ST adaptor.

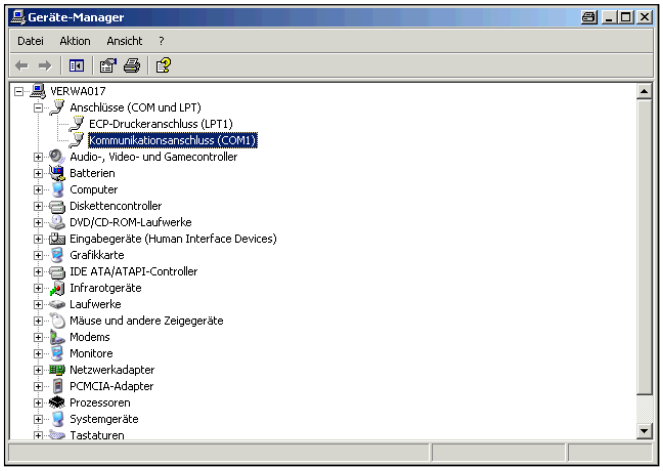
When using the MEMMINGER-IRO machine revolution sensor, the bridge must be set to the PNP position. If an NPN machine revolution sensor is used, the bridge must be reset accordingly.

Installing the LMT 7 Software on a Workstation

The installation wizard will normally start up automatically when the LMT 7 software CD-ROM is inserted into the drive. If this does not happen automatically, carry out the following steps:

- Click on Start > Run in Windows and change to the CD-ROM drive using “Search”.
- Select the file SETUP.EXE.
- Click on the “Open” button in the search dialog box and then click on “OK” in the run dialog box. The installation wizard will now start.

NOTE!
You may need administrator rights to install the LMT 7 software on a laptop. If you do not have administrator rights for the laptop, on which you wish to install the software, contact your systems administrator.

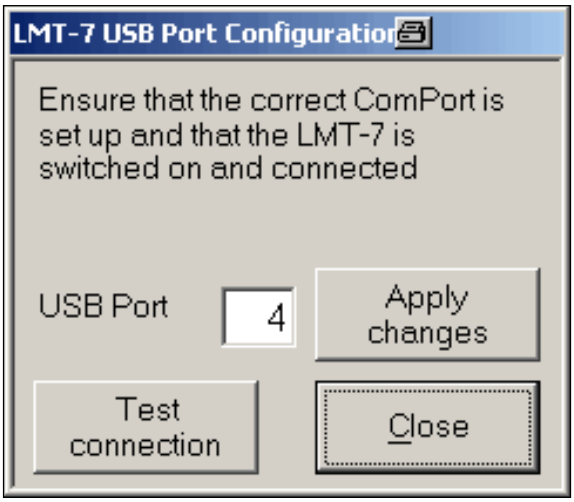


Installing the ST Adaptor Driver

You must install the ST adaptor driver before you can use the LMT 7 software. To install the driver, the ST adaptor must be connected to the laptop via the USB interface.

You can look for the active COM port in the system device manager of the control panel.

NOTE!
This installation is only necessary when using the machine for the first time.

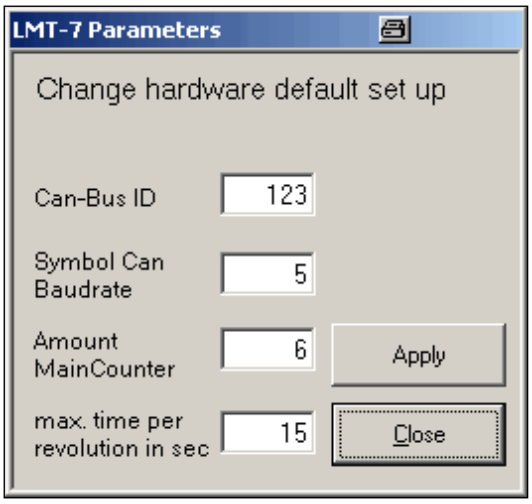

LMT-7 USB Port Configuration
Ensure that the correct ComPort is set up and that the LMT-7 is switched on and connected
USB Port
4
Apply changes
Test connection
Close

LMT 7 USB Port Configuration

The configuration of the USB Port is called using Extra > LMT 7 USB Configuration. Enter the current USB port.

NOTE!
The change must be made before you test the connection.

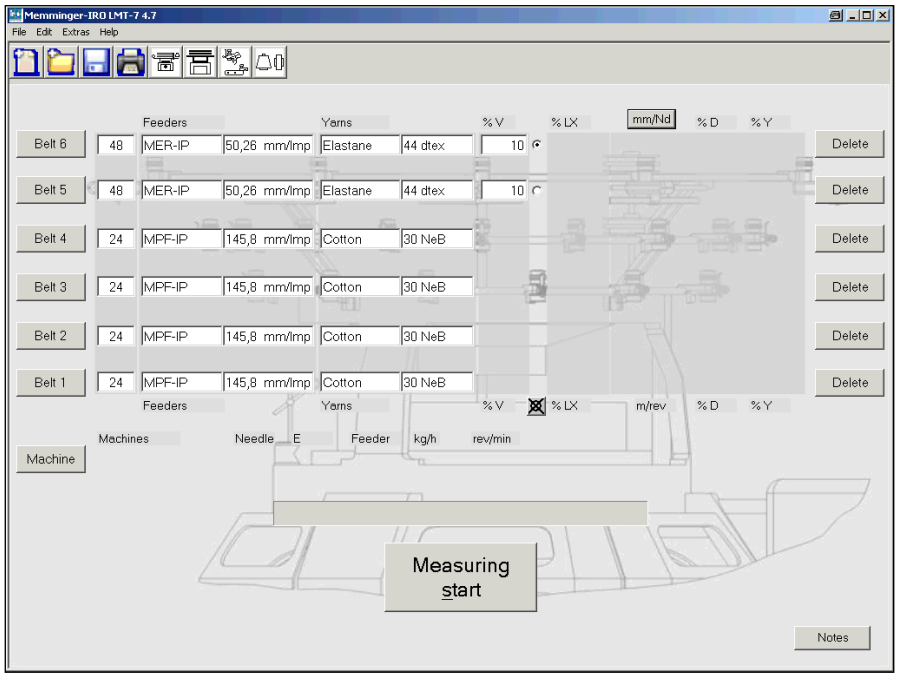
If the correct USB port has been selected, a window appears with the current version of the ST adaptor when you click on test connection.



LMT 7 Parameters

First the parameters must be called up under Extra > LMT 7. Click on apply, and press OK 4 times to confirm.

The number of measuring revolutions can adjusted at any time under Amount Main Counter.



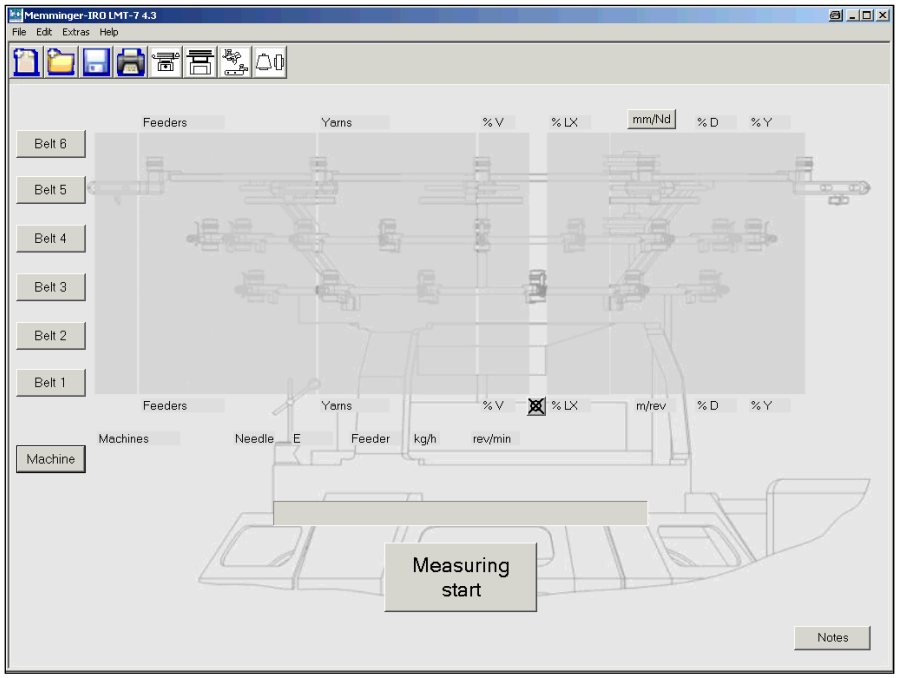
Possible Applications

The following settings can be used with the LMT 7 software:

- Load, save and print production data
- The production data can also be compared with current measurements from the knitting machine
- Input and access machine, feeder and yarn lists
- Demo to simulate measurement on the knitting machine
- Changes to the units of measurement (mm, kg, inch, pound)
- Change user language
- Turn tooltips on or off
- Change window size

Connecting the LMT 7 Software to the Measuring System

To measure with the LMT 7 software, the laptop has to be connected via the USB interface using the ST adaptor, which has been connected to the terminal box previously.



User Interface

New

Production data

Save

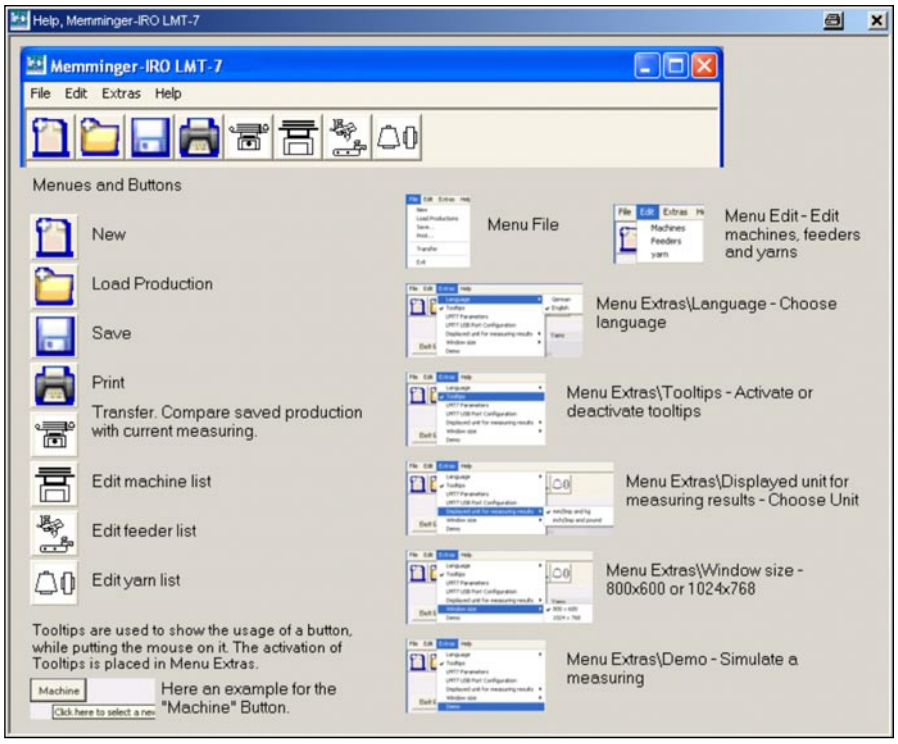
Print

Transfer

Machine list

Feeder list

Yarn list


Help, Memminger-IRO LMT-7
Memminger-IRO LMT-7
File Edit Extras Help
Menues and Buttons
New
Load Production
Save
Print
Transfer. Compare saved production with current measuring.
Edit machine list
Edit feeder list
Edit yarn list
Tooltips are used to show the usage of a button, while putting the mouse on it. The activation of Tooltips is placed in Menu Extras.
Machine
Here an example for the "Machine" Button.
Menu File
Menu Edit - Edit machines, feeders and yarns
Menu Extras\Language - Choose language
Menu Extras\Tooltips - Activate or deactivate tooltips
Menu Extras\Displayed unit for measuring results - Choose Unit
Menu Extras\Window size - 800x600 or 1024x768
Menu Extras\Demo - Simulate a measuring

Help

Further explanation of the menus and buttons is contained in the help menu.

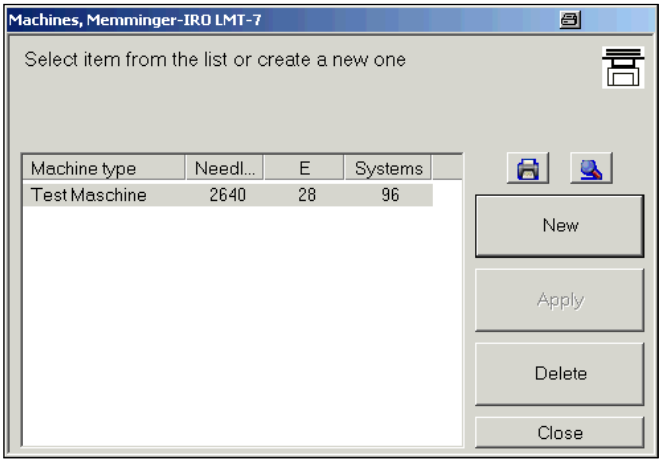
Version Information

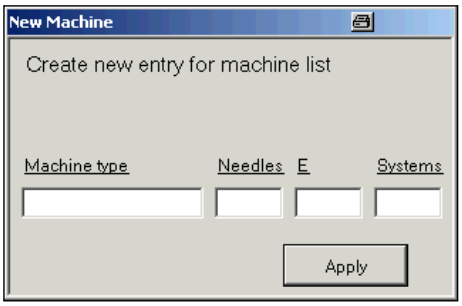
The current software version is displayed under Help > Info.

Machine, Yarn and Feeder Data Input

The data necessary for calculating measurement values are entered and stored in the individual lists.

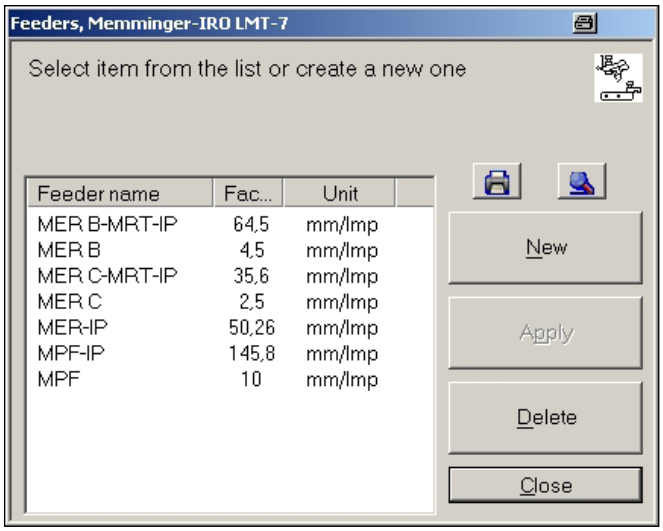
NOTE!
Pressing the ESC key allows you to leave a menu without changing it.





Machine list

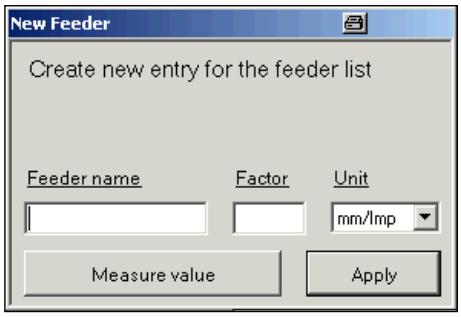
The machine types, needle number, yarn count and system number are entered in the machine list.



Feeder list

The feeders are listed in the feeder list with yarn feed amount per cycle.

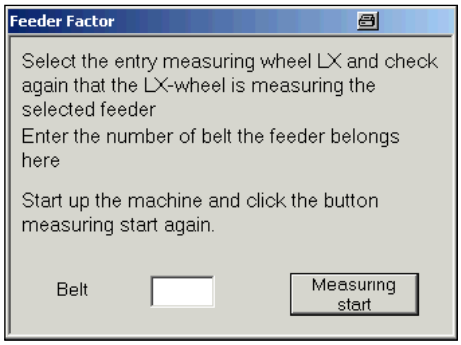
Feeder Name	Combinations
MER B-MRT-IP	MER B with Measuring roller tower IP
MER B	MER B with Measuring roller tower IP MER B with Belt measuring roller
MER C-MRT-IP	MER C with Measuring roller tower IP
MER C	MER C with Measuring roller tower IP MER B with Belt measuring roller
MER-IP	MER B with MER B IP MER C with MER C IP
MPF-IP	MPF with MPF IP MPF with Measuring roller tower IP
MPF	MPF with Measuring roller tower IP MPF with Belt measuring roller



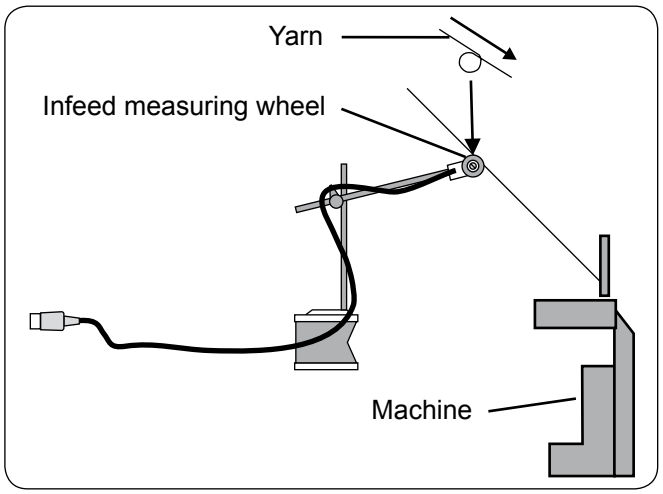
Establishing the Measurement Factor for Basic Yarn Feeders

If the feeder in question is not mentioned on the list, the conversion factor must be established using the infeed measuring wheel.

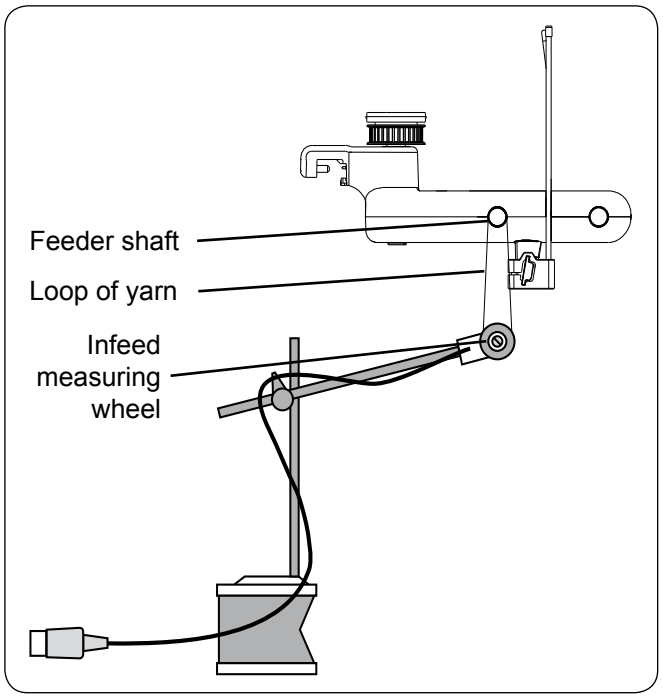
NOTE!
To establish the conversion factor, a pulse generator must be positioned on the belt to be measured.


Feeder Factor
Select the entry measuring wheel LX and check again that the LX-wheel is measuring the selected feeder
Enter the number of belt the feeder belongs here
Start up the machine and click the button measuring start again.
Belt
Measuring start

CAUTION!
To obtain an accurate measurement, it is vital that the feeder to be measured is positively driven by the toothed drive belt, which has been entered. If this is not the case, incorrect measurements will result.

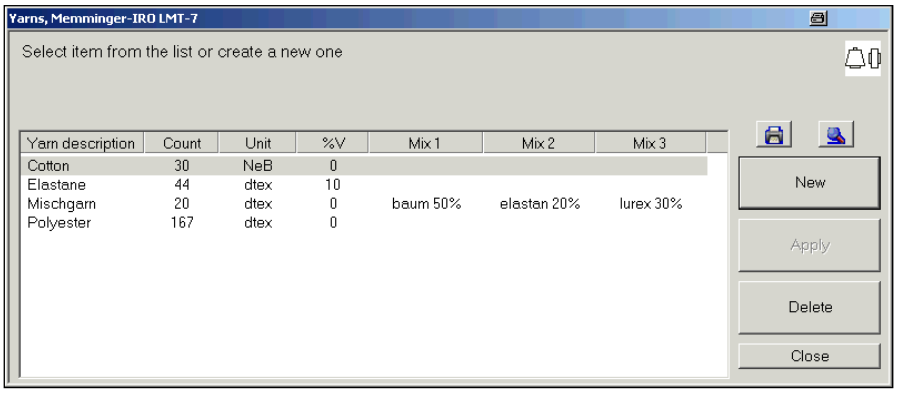


For the basic yarn, the infeed measuring wheel must be positioned in the line of flow of the yarn and the yarn must be wound once around the wheel.



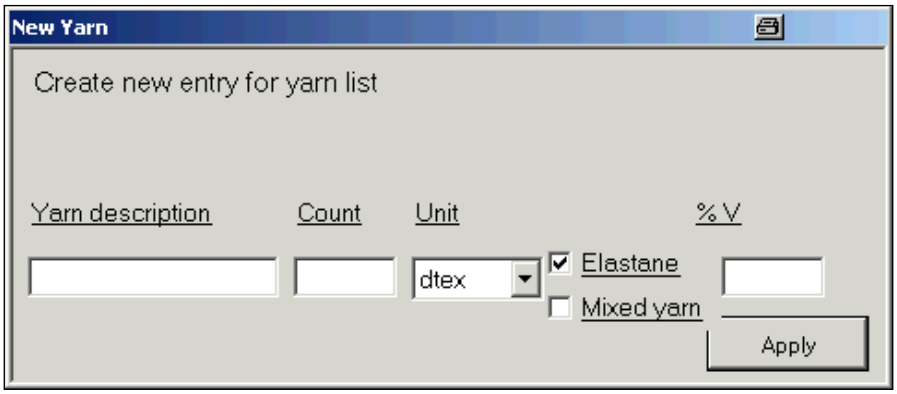
Establishing the Measurement Factor for Elastane Yarn Feeders

For elastane yarn feeders, the yarn feed amount of the drive shaft must be measured. For this measurement, remove the infeed measuring wheel from the magnetic stand. Make a loop from a length of basic yarn (approx. 30 cm long, max. 50 Nm). Place the loop of yarn around the drive shaft of the feeder and around the infeed measuring wheel.

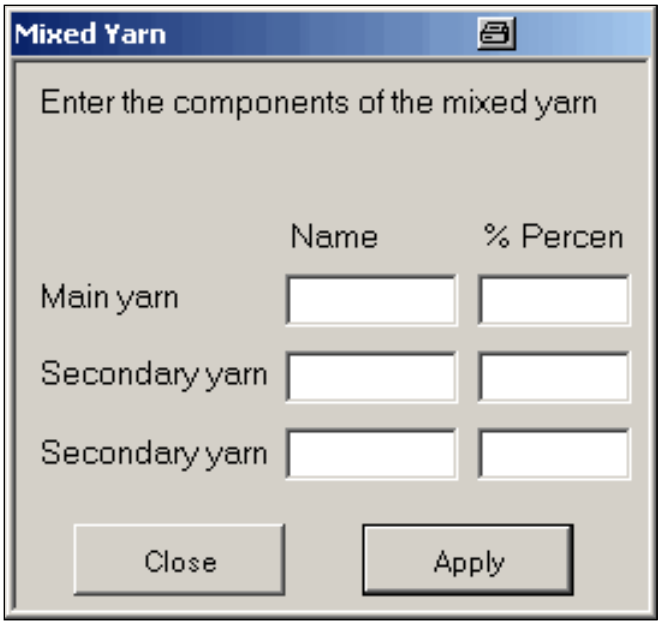


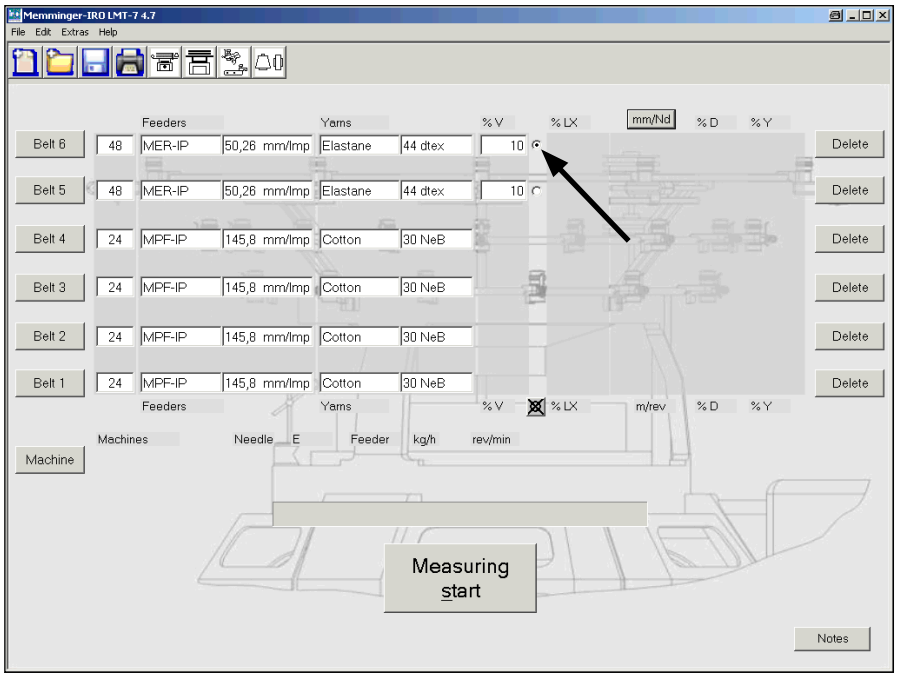
Yarn list

The types of yarn are entered in the yarn list together with yarn count and unit.



You can also enter the pre-tension of elastic yarns in % or for mixed yarns, the mix proportions in %.



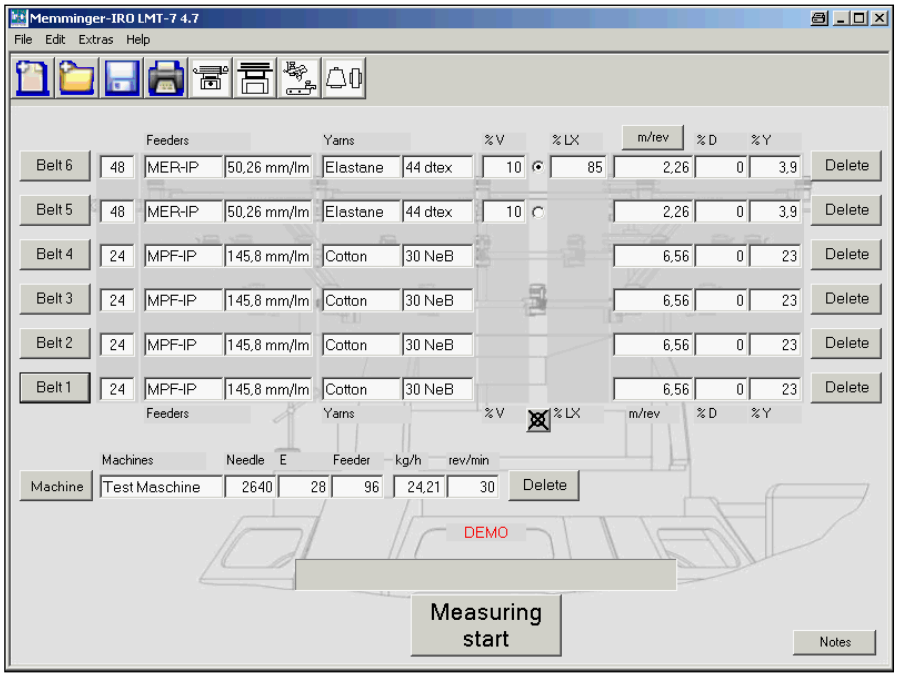


Production Data Input

The specifications for the machine and the individual belts are entered in the production list.

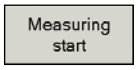
Then back up the production data

NOTE!
To compare production, the LX value of the elastane yarn can be observed using the infeed measuring wheel on the corresponding belt.



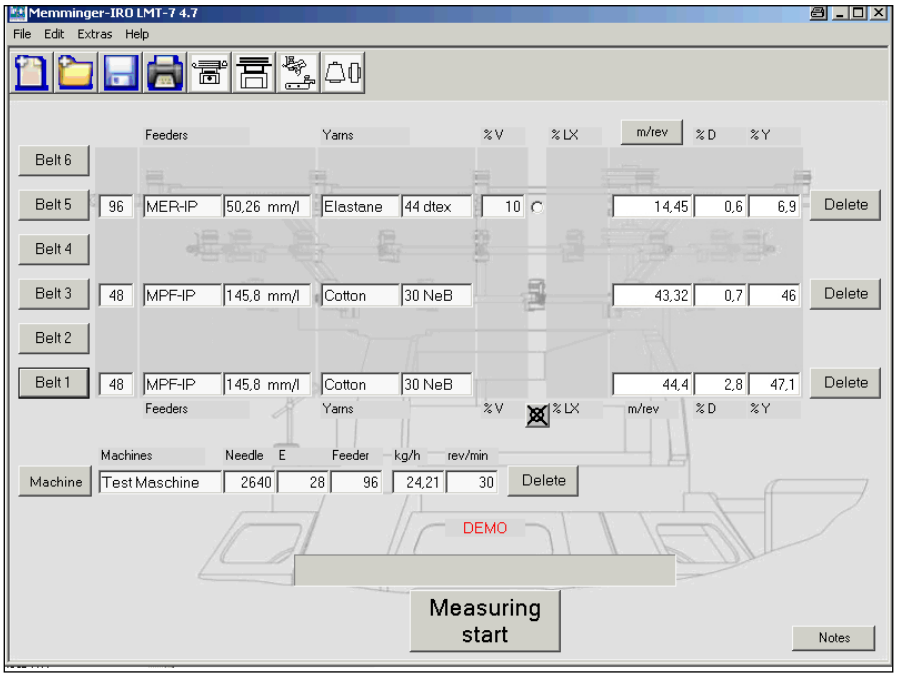
Measuring Production

Load production data



Start measurement

Back up production data



Comparing Current and Saved Production

Load production data

Measuring start — Start measurement

The difference in production is shown in the %D column.

NOTE!
The machine settings must be altered until the difference is 0 %D.

Reproducing Production on Different Machines

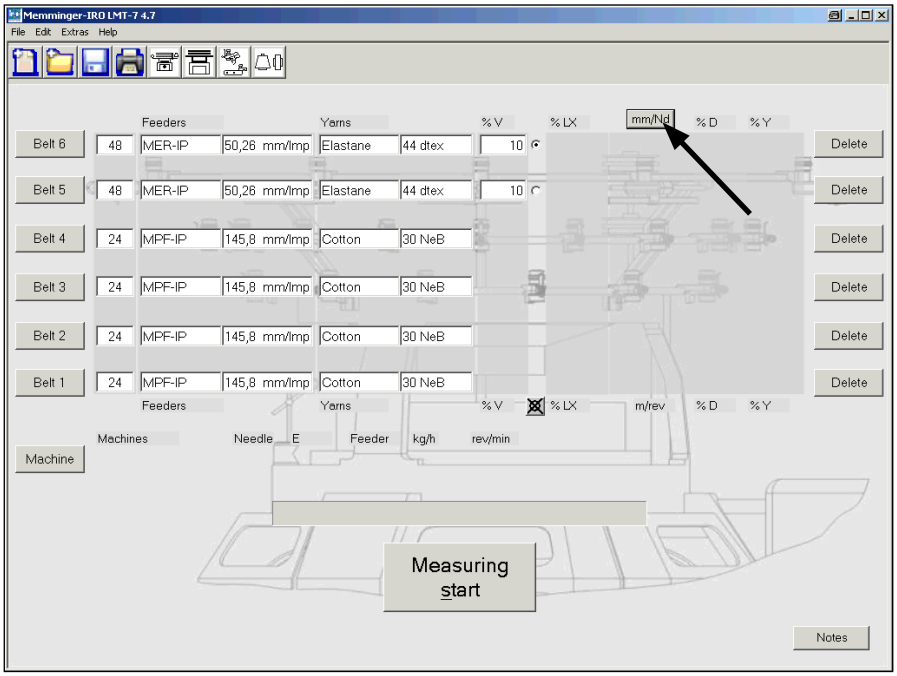
The following data must be identical for this type of production:

- Machine type (single, double)
- Gange of knitting machine
- Fabric construction
- Yarn used (description, yarn count, unit and stretch)

The following data can be different:

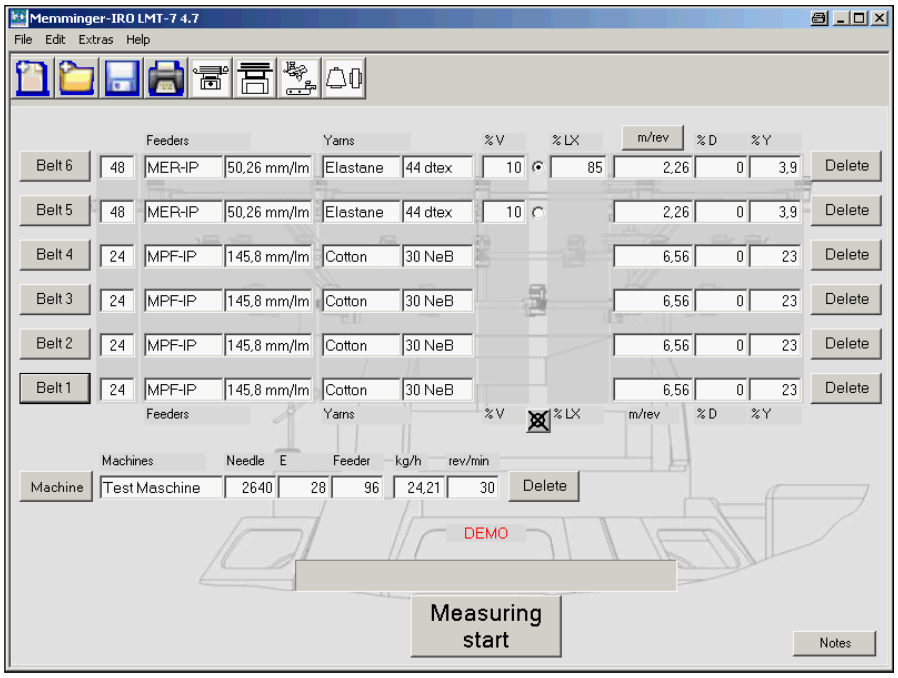
- Machine diameter
- Needle number
- Number of feeds on the knitting machine
- Yarn feeder type
- Number of drive belts

If all requirements have been met, enter all the data in the production list.



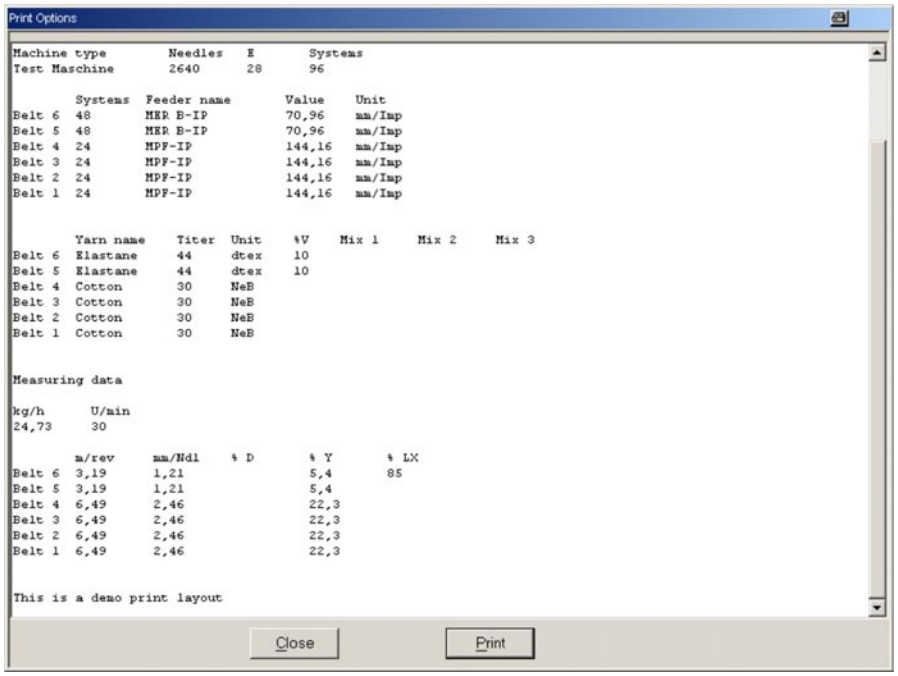
mm/Nd For measurement, the measurement unit must be set to mm/needle or inches/needle.

Measuring start — Start measurement


Memminger-IRO LMT-7 4.7
File Edit Extras Help
Feeders
Yarns
%V
%LX
m/rev
%D
%Y
Belt 6 48 MER-IP 50,26 mm/lm Elastane 44 dtex 10 85 2,26 0 3,9 Delete
Belt 5 48 MER-IP 50,26 mm/lm Elastane 44 dtex 10 2,26 0 3,9 Delete
Belt 4 24 MPF-IP 145,8 mm/lm Cotton 30 NeB 6,56 0 23 Delete
Belt 3 24 MPF-IP 145,8 mm/lm Cotton 30 NeB 6,56 0 23 Delete
Belt 2 24 MPF-IP 145,8 mm/lm Cotton 30 NeB 6,56 0 23 Delete
Belt 1 24 MPF-IP 145,8 mm/lm Cotton 30 NeB 6,56 0 23 Delete
Machines
Needle
E
Feeder
kg/h
rev/min
Machine Test Maschine 2640 28 96 24,21 30 Delete
DEMO
Measuring start
Notes

Keep correcting the machine settings until the production data corresponds to the production data of the new knitting machine.

Save production data.


Print Options
Machine type Needles E Systems
Test Maschine 2640 28 96
Systems Feeder name Value Unit
Belt 6 48 MER B-IP 70,96 mm/Imp
Belt 5 48 MER B-IP 70,96 mm/Imp
Belt 4 24 MPF-IP 144,16 mm/Imp
Belt 3 24 MPF-IP 144,16 mm/Imp
Belt 2 24 MPF-IP 144,16 mm/Imp
Belt 1 24 MPF-IP 144,16 mm/Imp
Yarn name Titer Unit %V Mix 1 Mix 2 Mix 3
Belt 6 Elastane 44 dtex 10
Belt 5 Elastane 44 dtex 10
Belt 4 Cotton 30 NeB
Belt 3 Cotton 30 NeB
Belt 2 Cotton 30 NeB
Belt 1 Cotton 30 NeB
Measuring data
kg/h U/min
24,73 30
m/rev mm/Ndl % D % Y % LX
Belt 6 3,19 1,21 5,4 85
Belt 5 3,19 1,21 5,4
Belt 4 6,49 2,46 22,3
Belt 3 6,49 2,46 22,3
Belt 2 6,49 2,46 22,3
Belt 1 6,49 2,46 22,3
This is a demo print layout
Close
Print

The production data can be printed out.

Technical Data

Operating system:	Microsoft Windows XP or higher	
Voltage range:	24 V AC, 50/60 Hz ± 15%	
Max. input:	< 10 W	
Ambient temperature:	+10 to 50 °C	
Weight:	MPF-L IP	430 g
	MER 2 IP	1500 g
	Measuring roller tower IP	1440 g
	Measuring roller tower ST adaptor	450 g
	Terminal box	1000 g
	Infeed measuring wheel with stand	3500 g

Troubleshooting

Fault / Message	Possible Cause	Solution
Data transfer error	Check USB settings	Check the USB connection from the laptop to the ST adaptor
Infeed measuring wheel not active	Infeed measuring wheel is not plugged in to the ST adaptor.	Check connection of the infeed measuring wheel to ST adaptor
Hardware not found	COM driver is not installed on the laptop.	Install the COM driver.
Nothing displayed in the m/U or mm/N fields	The MPF IP or MER IP pulse generators or the measuring roller tower were not connected to the terminal box, or were not connected correctly.	Check if the LED's corresponding to the belt, "B1 - B6", on the ST adaptor light up or flash when the knitting machine is running. Check the connection between the pulse generator MPF IP, MER IP or the measuring roller towers and the terminal box.
After "Start Measurement" the blue progress bar does not advance, the value displayed in the m/U field does not change.	The program is not receiving any machine revolution signal.	Check the machine revolution signal Check if the "MC" LED on the ST adaptor flashes once for every machine revolution.

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